

to the light-keepers, Messrs. Ayers, Gilpin, and Hambling, for their great kindness, attention, and co-operation on all occasions during my residence on the rock. To Professor Newton and Sir Michael Foster my grateful acknowledgments are due for the kindly interest they took in the furtherance of my project: without their influential aid my visit to the Eddystone would not have been accomplished.

XVII.—On *Anser erythropus* and its Allies.

By J. H. GURNEY, F.Z.S.

MR. F. COBURN, of Birmingham, has announced in 'The Zoologist' (1901, p. 317) an event of considerable interest to British ornithologists, namely, that a Lesser White-fronted Goose, *Anser erythropus* (= *A. minutus* Naum.), was killed during the preceding January in Norfolk. I understand that this rare bird was taken in the Wash, and sent along with some Coots and Knots to a poulterer in Birmingham Market by a reliable fisherman at King's Lynn, but, of course, it is as likely to have been obtained on the Lincolnshire side as in Norfolk. The weather, when it was shot, was fine with westerly winds. Mr. Coburn has since been good enough to give me an opportunity of comparing his specimen with several examples of the White-fronted Goose (*A. albifrons*), and as its beak, which is the important feature, is intermediate in size between those of its two allies, I hope that a few remarks will not be out of place with a view to further establishing its identity, and also the specific value of the three closely allied species, *A. albifrons*, *A. erythropus*, and *A. gambeli*.

The American species, or subspecies, *A. gambeli* Hartl., is generally recognisable by its comparatively large beak and its blacker underparts. It ranges over the whole of North America, while there are three specimens in the Natural History Museum from Japan, where its range meets that of *A. erythropus*. Details of its distribution are given in 'North American Birds,' vol. i. pp. 448-454, and in the 'Catalogue of Birds,' vol. xxvii. p. 95. Opinions differ as to

whether it is found in Greenland, but in any case it is the New World representative of the other two forms.

Since Professor Newton first discriminated between *A. albifrons* and *A. erythropus* (P. Z. S. 1860, p. 339) the marks by which the latter has been held to be distinguishable from *A. albifrons* are its much smaller size, its distinctly

Fig. 6.

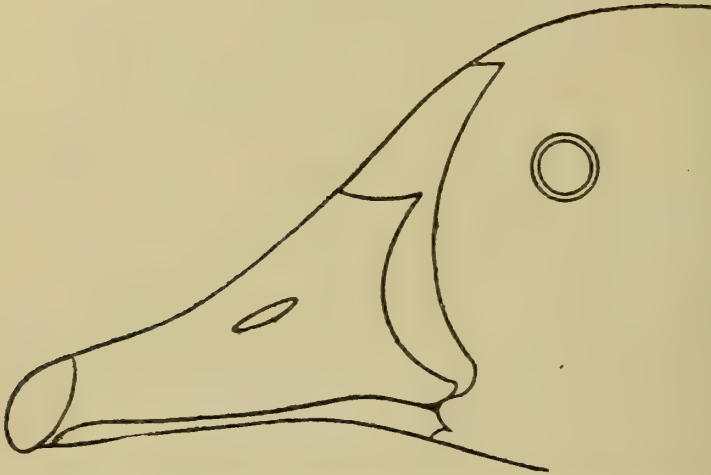
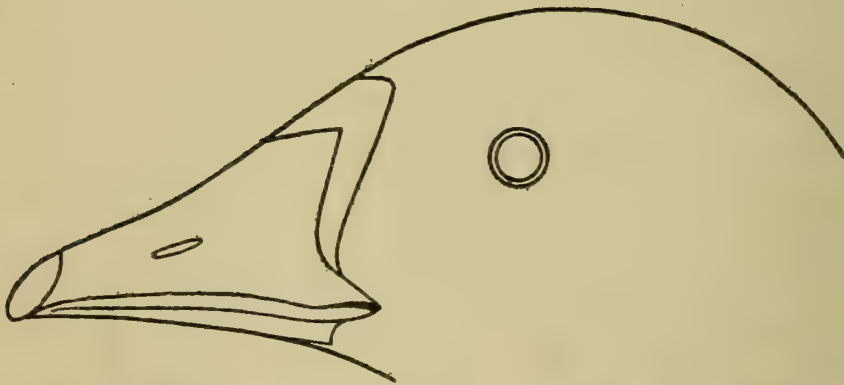
Outline of the head of *Anser erythropus*. (The Wash, England.)

Fig. 7.

Outline of the head of *Anser erythropus*. (The Delta, Egypt.)

smaller beak, and the slightly darker tint of its plumage, more particularly beneath the wing, though this cannot be said to be apparent in Mr. Coburn's specimen. The white of the face and forehead is generally more extended in *A. erythropus*, reaching backwards to a point between the

eyes, as will be seen from the accompanying figure of Mr. Coburn's bird (fig. 6, p. 270). For further comparison I think it advisable to give an outline of the head of an Egyptian example of *A. erythropus* (fig. 7, p. 270). Another important point is that in *A. erythropus* the eyelids are yellowish, making a definite circle round the eye (*cf.* Ibis, 1901, p. 451).

Mr. Coburn's Goose may possibly be nearly adult, but I doubt the fact, for it has not much black on the under surface, although shot in the month of January; he considered the skull smaller than that of *A. albifrons*, and the eye-sockets nearer to the base of the bill—an osteological difference which, though slight, may be important.

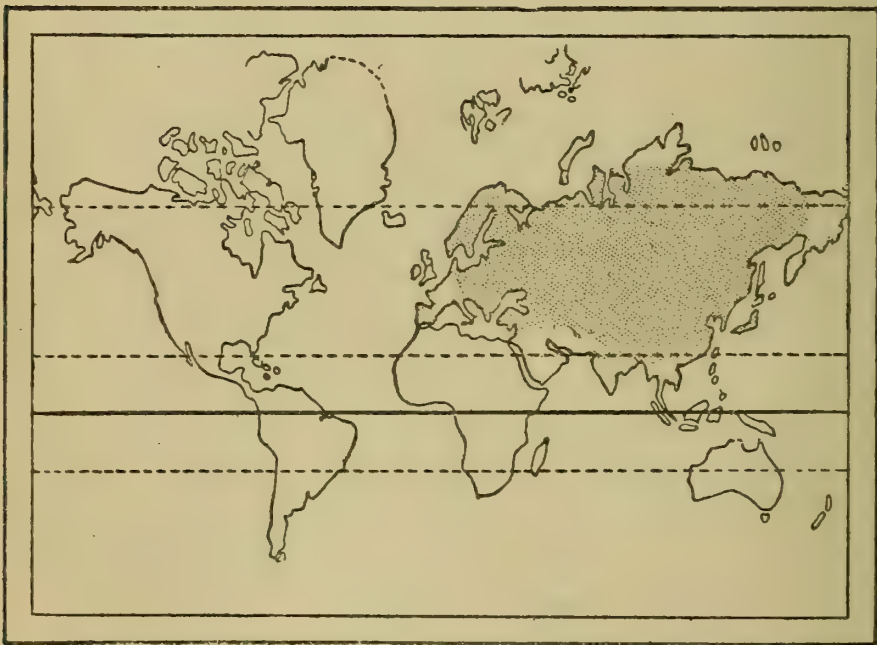
His bird measured 22 inches in length before it was skinned, whereas the length of a fine *A. albifrons*, also preserved by him, was 26·5, and that of another measured by me was 27.

Its legs, when he received it, were deep reddish orange, having probably changed to that colour from yellow; the bill was fleshy yellow, the nail white with a pink tinge; the irides were hazel. The colour of the soft parts, and especially of the beak, is a very important feature in Geese, but needs to be noted immediately after death or in life. Linnæus, when he described *A. erythropus* as having "rostrum sordide carneum . . . pedes sanguinei," probably had before him an example of this species; but it must have been one which had been several days dead, and Pallas, unless he copied from Linnæus, must have been misled in the same way (Zoogr. Rosso-As.). Even Bishop Gunner does not give the colour correctly (see Prof. Newton's translation of Gunner in Bree's 'Birds of Europe').

It may be worth while briefly to sketch the distribution of *A. erythropus* so far as it has been distinguished from *A. albifrons*, which inhabits the greater part of Europe and Asia, but is the less northern species of the two. The nearest place to the British Isles where *A. erythropus* breeds is the Lofoten Islands in the north of Norway; thence it extends eastwards to Lapland and Finland and throughout

the Russian Empire to the great Yenesei River (Seebohm and Popham). It reaches China (Ibis, 1892, p. 490) and Japan, and has been recently obtained in Burma by Col. Rippon. Mr. Blanford writes of it as "a very rare cold-weather immigrant in Northern India," and examples have been lately procured at Calcutta (*cf.* Finn, P. A. S. Beng. 1898, p. 1). It has been repeatedly shot in Greece, where it is said even to breed. It not infrequently comes as near to us as Denmark and Holland (see Zoologist, 1885, p. 33), and M. Dubois cites two occurrences in Belgium (November 1856 and winter of 1858), while Mr. Howard Saunders examined one in Italy (Ibis, 1869, p. 395). As might be expected, it is occasionally obtained in Northern Egypt in winter (see P. Z. S. 1876, p. 414). The accompanying map (fig. 8) will best shew its distribution.

Fig. 8.

Map showing the distribution of *Anser erythropus*.

There are some naturalists who would unite the three White-fronted Geese under one name, but this seems an unscientific way of treating the question, and so long as the slightest difference in colour—even to the colour of an eyelid—can be found, combined (as it is in their case) with

some difference of habitat, surely such birds ought to be kept asunder. In the 'Catalogue of the Birds in the British Museum,' xxvii. pp. 92-99, the three forms are treated as distinct species by Count Salvadori, who evidently had a good series of skins before him. I think that there is less difference between *A. albifrons* and *A. gambeli* than there is between *A. albifrons* and *A. erythropus*, but, if a new species, *Anser neglectus* (cf. Ibis, 1897, plate ii.) can be put in between *A. brachyrhynchus* and *A. segetum*, all the three White-fronted Geese ought surely to stand also, from a separatist's point of view.

Some British-killed examples of *A. albifrons* are very black indeed on the under surface, and, in fact, have little colour except black on the lower breast and belly. One of these dark examples (killed in Co. Mayo) was sent by Mr. Coburn to a meeting of the Norwich Naturalists' Society along with his *A. erythropus*, and another is particularly referred to in Ussher's 'Birds of Ireland' (p. 170) as having been shot at Baronscourt. These Geese may have flown across the Atlantic Ocean, and thus be regarded as veritable *A. gambeli*, or they may be hybrids. *A. erythropus* is also very black occasionally, judging from the plate in Bree's 'Birds of Europe,' the only representation of it published in this country, and one which must have been taken from a very black-bellied example.

It is highly probable that *A. gambeli* occasionally breeds with *A. albifrons*, and *A. albifrons* with *A. erythropus*, hybrids being thereby produced. The authors of 'North American Birds,' i. p. 450, mention a cross between *A. gambeli* and *Bernicla occidentalis*, and M. Suchetet notes another supposed cross between *A. albifrons* and *B. brenta* (Ois. hybrides, p. 739). There are other instances of Geese interbreeding, as at Lilford, where a White-fronted goose paired with a Bean gander (Zoologist, 1894, p. 214), shewing that there is nothing at all improbable in a union between any two of the three closely allied White-fronted Geese.

The following comparative measurements begin with those

of *A. gambeli* having the culmen 2·35 in., and gradually diminish to those of an example of *A. erythropus* having the culmen barely 1·2 in., a very great difference indeed; my measurements are taken from the tip of the beak to the commencement of the frontal feathers:—

	Culmen. in.	Tarsus. in.
<i>A. gambeli</i> . 'N. Amer. Birds,' by Baird, Brewer, & Ridgway, i. p. 449	2·35	3·10
<i>A. gambeli</i> . Cat. of Birds in B. M. xxvii. p. 97..	2·3	
<i>A. albifrons</i> . Leadenhall Market, January. Im- mature	2·1	2·8
<i>A. gambeli</i> ?, ♀. California, February 1855, in Cambridge Museum	1·9	2·8
<i>A. albifrons</i> , ♀. Islay, N.B., January	2·0	2·6
<i>A. albifrons</i> , ♀. Co. Mayo (F. Coburn)	1·8	2·4
<i>A. albifrons</i> , ♀. Egypt, March	1·7	2·3
Mr. Coburn's example, ♀ (<i>A. erythropus</i> ?), from the Wash, shot in January	1·5	2·4
<i>A. erythropus</i> , ♂. Northumberland, September. Immature	1·4	2·2
<i>A. erythropus</i> , ♀. Siberia, June. (Dresser, B. of E. vi. p. 383.)	1·3	2·2
<i>A. erythropus</i> . Delta of the Nile, January, 1875. Immature	1·2	2·2

A. erythropus was first introduced as a British bird at a meeting of the Zoological Society of London held in November 1886, when a young male, shot by Mr. A. C. Chapman on the coast of Northumberland, was placed upon the table; of this Mr. Chapman has given a full account in 'The Field' of Dec. 11th, 1886 (vol. lxxviii. p. 87), where he states that it weighed only 2½ lbs., which is 2 lbs. less than Mr. Coburn's bird. Indeed, so small is *A. erythropus* that it has been compared to an Eider Duck and even to a Mallard: one shot on the Yenisei by Mr. Popham weighed 4¼ lbs. The weight of *A. albifrons* is given in Mr. Harting's 'Handbook Brit. B.' ed. 2, at 6½–7 lbs., but that is much more than the weight of two Norfolk examples weighed by me, which were 5 lbs. and 4¾ lbs. respectively. Another specimen of *A. erythropus*, the head of which I saw, was shot in January 1888 in Somersetshire, but it was supposed to have escaped from

captivity* (Zool. 1888, p. 176). A third example had been previously seen (about 1874) by the late Mr. J. Cordeaux in a game-shop at Grimsby (B. Humber District, p. 22).

In October 1871 an immature White-fronted Goose, with a very short beak, was bought in Leadenhall Market, which puzzled my father and me, but which I now think was *A. erythropus*; whether it was British-killed or not it is impossible to say. This was a young bird and the general tone of its plumage was distinctly dark, a feature noticed by the late Mr. Seebohm (P. Z. S. 1886, p. 420), but which I am afraid is not constant. It had no bars on the breast or belly, a fact which in all the White-fronted Geese has been regarded as a mark of immaturity, but I have known an example of *A. albifrons* to live about four years on a pond at Cromer without acquiring bars.

XVIII.—*Further Notes on the Birds of the Outer Hebrides.*

By J. A. HARVIE-BROWN, F.R.S.E.

MANY striking changes in the Avifauna of the Outer Hebrides have been brought to the notice of ornithologists since I visited the group along with Colonel Feilden in the year 1870, though whether some of these changes are not more apparent than real is a point which cannot at present be regarded with absolute certainty. Personally, however, I am of opinion that most of the new records are due to an extension of range of the species, whether on migration or otherwise, while it is an undoubted fact that certain birds are incomparably more plentiful than they were even in 1888, when the 'Fauna of the Outer Hebrides' issued from the press.

To these changes then I particularly desire to draw attention in this paper, now that a large mass of fresh information has been collected by personal investigations and by the aid of many kind correspondents; and I hope to publish in an early part of the 'Annals of Scottish Natural History' full details regarding the species concerned.

* Four or five examples of this Goose have lived in the Gardens of the Zoological Society of London at different times.